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16 January 1980

File SAFE

MEMORANDUM FOR: Director, Consolidated SAFE Project Office
Deputy Director, Consolidated SAFE Project Office

FROM: Director, Information Resources Office

SUBJECT: [   ] - SAFE System Requirements
Specification

1. In the time available, we have reviewed the subject documents and offer the following comments and observations for your consideration:

a. In view of the statement found on p. 4 of Book I that: "In the event of conflict between the documents referenced herein and the contents of this specification, the contents of this specification shall be considered a superseding requirement, except in the case of the SAFE Contract," it is our opinion that this set of documents will become part of the contract and will henceforth govern and determine the actual configuration of the systems and the capabilities that both SAFE systems will consist of at IOC. The CSRD documents will have validity only to the extent that this specification is silent or the wording of the Systems Requirements Specification can be harmonized with the CSRD. We have not been able to make a detailed comparison between the two sets of documents to ascertain the exact extent that changes have been made. We know that the staff of the CSPO is engaged in such a study. We feel that the results of such a study should be incorporated in a written memorandum which summarizes all significant changes which [   ] has made, which the CSPO is STATINTL prepared to accept, the rationale therefor, together with an analysis of the overall significance of these changes. This memorandum should then be provided to the members of the Steering Committee for their review prior to government acceptance of the Systems Requirements Specification.

b. In general, the statement of the general system requirements and the requirements for SAFE-C seem to provide a reasonable set of criteria for directing the detailed system design and its evaluation. However, there seem to be a large number of items which are designated to be implemented "in a simplified manner." Some of these appear

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to be relatively critical elements of the system, so that a written explication of what is meant by a "simplified manner" should be required, either as to specific items or a general formula, or both.

   c. The SAFE-D specifications, on the other hand, appear to us to be too incomplete, even for this stage of the project. Given the fact that in its present form these documents become the operative part of the contract itself insofar as defining the deliverable, the government should certainly not approve this portion of the system requirements specification until many of the items listed as "TBD" have been determined.

   d. I have previously noted the fact that there is no electrical interface specified between the SAFE-C and SAFE-D systems. In addition to the electrical interface specification, we believe that the ability to implement certain functions, such as the capability for analyst-to-analyst communication between SAFE-C and SAFE-D terminals and the capability for SAFE-C terminals to access data bases resident on SAFE-D and vice-versa, should be stated explicitly, even though the specification of an electrical interface might imply such a capability. The need for this is, in my opinion, supported by the results of the IHC Analysts Support Study.

   e. Even though SAFE-C, and possibly SAFE-D, are to be initially implemented in a system high operational mode, both from the aspect of being able to impose the "need-to-know" and being able to implement compartmentation controls, it is desirable that the system have the capability of imposing access controls down to the record level and possibly to the sub-element level. It is not clear to me from my review that this is provided for, either at IOC or beyond. If it is, I would appreciate being informed of the specific provision therefor. If not, I would appreciate being informed of your estimate of the resource implications of including this as a requirement, either for IOC or post-IOC implementation.

   f. In dealing with the ADSTAR interface, paragraph 10.3.7.12.3.1 provides that a SAFE user can request "a print of an ADSTAR document" or "the display of an ADSTAR document" on an ADSTAR terminal. It was my understanding of the original concept that when, through an index search, a SAFE user had identified a series of documents resident on ADSTAR which met the criteria of his search strategy, he would then be able to have the system execute a command which would permit him to browse the complete list of documents on his

ADSTAR terminal or to execute a command to print all of the referenced documents without having to re-enter the document numbers of each of the references. It appears to us that if this is the case, this language should be amended to so specify.

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   g. While the requirements appear to be quite adequate regarding[____]responsibilities to develop and carry out a quality assurance program, the documents seem to imply that the CSPO will only be involved in reviewing the documentation up to the point of system demonstration testing. We believe it advisable to include language which indicates that government personnel will be afforded the opportunity to monitor all phases of test and evaluation and making provision for additional review and testing if the original results are unsatisfactory.

   h. In paragraph 10.3.2.5.4 of the system requirement specifications the following statement appears: "The system shall mishandle no more than 0.1 percent of transactions (user requests for service)." This was derived from CSRD V. 5, paragraph 4.2.3.2.2. We interpret this from its context in the CSRD to represent an attempt to define a STATINTL a measurable degree of software reliability. [____]attempts to postpone the attainment of this standard until FOC as regards SAFE-C. However, a similar requirement as to SAFE-D which prescribes a much more stringent standard is found in paragraph 20.3.2.5.4 where it is indicated that this is to be "implemented in a simplified manner." If there is to be such a specification, it seems to us that it should be required to be attained, either at IOC or within a reasonable stated time after IOC. Also, there is no specification of the manner in which the fulfillment of the requirement is to be judged. For it to have real validity, it would seem to us that it could only be deemed to have been satisfied following a period of full-scale operational experience, with a reasonable opportunity for the contractor to correct some of the error in coding which will necessarily escape the most stringent test and evaluation program. Regardless of the above suggestions, it appears that it would be preferable to eliminate the requirement entirely rather than include it as a standard to be attained only at FOC.

   i. We are concerned about the statement found in paragraph 20.3.2.1.1 that: "The response time requirements are only applicable for the current active highest priority users." This appears to be an attempt to restate the language in CSRD, Vol. V, p. 4-1, where it is stated:

"the objective of the DIA SAFE system is to provide the lowest possible response times for those activities which support the on-line user activities, and reasonable response times for all other system activities, depending on their criticality to the intelligence processing mission." If so, it is ambiguously worded and much more restrictive than necessary.

    j. Section 10.3.1.2 of the system requirements specification states: "The mission of the CIA SAFE system is to improve support to intelligence production analysts by providing indirect access to other intelligence community and commercial computer systems." We are unable to interpret any of the substantive requirements to provide for such access. We would appreciate being advised as to whether or not the requirements as presented permit the fulfillment of this portion of the stated mission, and if so, how this is to be implemented.

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    2. When we reviewed the ☐ proposal, we were concerned with the manpower loading proposed by ☐ over the course of the project since it did not appear to conform with models in the literature. There did not appear to be sufficient manpower remaining to do error correction coding which is generally required after IOC in the case of SAFE-D. We had thought this might be addressed in the management plan. Since it is not, we take this opportunity to call it to your attention and ask if there has been any modification in ☐ s plans in this regard subsequent to their proposal?

    3. The DIA portion of the CSRD in Vol. V, Section 3.3, it was provided that: "To avoid the current difficulties in multiple query language (AIRES, COINS, DIAOLS), the SAFE system should be implemented with a common standard language for all subsystems. A language interpreter which converts user input commands to the form acceptable by the queried system should be developed for systems external to SAFE which users wish to access. At IOC this capability should be provided for AIRES and selected COINS systems to be specified by the government at a later date. Post IOC development should aim towards expanding this capability to other systems." In the matrix, this provision of the CSRD is described as "N/A," but Section 20.3.1.5.1.2.2 provides: "The system shall provide the capability for transparent access to other systems in the Washington Area Local Communications Network. This transparent access will initially be provided only to the SOLIS and AIRES systems." Presumably the requirement to provide a "transparent access" implies a language interpreter be built for these two external systems. (Perhaps this should be more specific.) It is common knowledge, confirmed by the results of the IHC Analyst Support Study, that one of the principal barriers to more widespread use by the analytical community of automated

data bases is the difficulty of being forced to use a bewildering
variety of complex retreival languages. The differences among
these languages are often arbitrary. There are two possible
approaches to solving this problem. One is the development of
language translation facilities such as proposed by the above
quoted CSRD requirement and the COINS ADAPT project, and the
establishment of a standard user language for the implementation
of functions which are common to all or most information retrieval
systems. With the advent of SAFE, a large portion of the
Community's data bases will be accessible to a very large
proportion of the Community's analysts, either through SAFE or
COINS. If the development of the SAFE user language and the
development of the mechanisms to provide transparent access
therefrom to the AIRES and the data bases from SAFE-D were
properly coordinated with the COINS ADAPT project, the result
would naturally be the establishment of a de facto community
standard user language. The development of such a standard to
which future community systems could be adapted is a very
substantial contribution to the improvement of information
handling throughout the Community which SAFE could make. I would
appreciate discussing this with you in some depth. I suggest that
there should be a requirement stated for the coordination of
work on the SAFE user language and the transparent access to AIRES
and SOLIS with the COINS PMO.

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4. I appreciate the opportunity to comment on the
requirements documents. I hope they will be helpful to you.

cc: D/DCI/RM
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